

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) An integrated information communication system comprising:

at least one set of a communication company management network, in which said communication company management network includes ~~an~~ a first access control apparatus,

a relay apparatus, and

a server; ~~and wherein said~~ first access control apparatus, said relay apparatus, and said server are connected to each other via an internal communication line having a packet transfer function, and wherein:

when two, or more sets of said communication company management networks are employed, these communication company management networks are connected via a boundary relay apparatus ~~to each other~~ by using said internal communication line;

~~an external terminal of said integrated information communication system is connected via a user communication line to said~~ first access control apparatus being provided for being connected via a logic terminal to an external terminal, an internal address is applied to a said logic terminal being identified by an internal address so as to identify said logic terminal of a termination of said user communication line, and also said first access control apparatus ~~contains comprising~~ a conversion table;

a record of the conversion table comprising identification information of said logic terminal, a first internal destination address, and if a request identification field of said conversion table is having a value indicating a virtual dedicated line if virtual dedicated line communication is to take place via said logic terminal toward said first internal destination address, then identification information of a logic terminal into which has received an external packet is registered as a record of said conversion table in such a manner that the determination of said identification information of the logic terminal allows for an exclusive determination of an internal destination address which

is stored in a header of an internal packet produced by an access control apparatus—
installed on the transmission side;

a record of the conversion table comprising identification information of said logic terminal, a second internal destination address, a first external source address, a first external destination address and if said a request identification field is having a value indicating a private address communication, if private address communication is to take place via said logic terminal toward said second internal destination address, a set of information/address comprising an identification information of a logic terminal which has received an external packet; an external source address thereof;; and an external destination address thereof is registered as a record of said conversion table in such a manner that if the determination of said information/address set allows for an exclusive determination of said internal destination address which is stored into the header of the internal packet produced by the access control apparatus installed on the transmission side; and

with respect to identification information of the same logic terminal, a set of said external destination address and said internal destination address stored into said header portion is made different from each and every other record; and

a delivery destination of said external packet can be changed by changing an external destination address contained in an external packet which is entered from the same logic terminal;

a record of the conversion table comprising identification information of said logic terminal, at least one of a second external source address and a second external destination address, and if said request identification field is having a value indicating a non-private address communication, if non-private address communication is to take place from said second external source address, via said logic terminal or via said logic terminal toward said second external destination address, a set of said identification information of the logic terminal and said source address is registered as a record of said conversion table; said registration implies a transmission permission with respect to a terminal having said external source address;

said first access control apparatus being provided for determining, when an external packet is received reached from said logic terminal, via said user—

communication line to an access control apparatus; a detection is made of such a fact so that if the record of the conversion table that comprises the identification information of the said logic terminal has a request identification field indicative of :

as a first case, ~~said request identification is registered as a virtual dedicated line into a record of said conversion table containing the identification information of the logic terminal which has received said external packet;~~

as a second case, ~~said request identification is registered as a private address communication into the record of said conversion table;~~

as a third case, ~~said request identification is registered as a non-private address communication;~~

wherein in both said first case and said second case, said first access control apparatus is provided for converting said external packet is converted into said into an internal packet by employing both logic terminal identification information and one of the first and second an internal destination address, which are acquired from said conversion table; and

in said third case, said first access control apparatus is provided for transferring while said external packet is directly used as an internal packet;

said first access control apparatus being provided for transferring said the internal packet acquired in of said first case to said third case is transferred via said internal communication line and said relay apparatus provided in said integrated information communication system, and also is transferred via a logic terminal of an a second access control apparatus installed on the reception side to coupled to another user communication line so as to be thereby reached transferred to another terminal;

the second access control terminal comprising and when a packet filter employed in said access control apparatus detects for detecting and discarding the packets having an external that the destination address contained in said external packet corresponds to such an address outside a predetermined range which is not opened outside network, said packet filter discards said detected external packet.

2. (currently amended) An integrated information communication system comprising:

at least one set of a communication company management network, in which said communication company management network includes ~~an~~ a first access control apparatus,

a relay apparatus, and

a server; and ~~said access control apparatus,~~ wherein said relay apparatus, said first access control apparatus and said server are connected ~~to each other~~ via an internal communication line having a packet transfer function, and wherein:

when two, or more sets of said communication company management networks are employed, these communication company management networks are connected via a boundary relay apparatus ~~to each other~~ by using said internal communication line;

~~an external terminal of said integrated information communication system is connected via a user communication line to said~~ first access control apparatus being provided for being connected via a logic terminal to an external terminal, said ~~an internal address is applied to a logic terminal being identified by an internal address so as to identify said logic terminal of a termination of said user communication line, and also said~~ first access control apparatus contains comprising a conversion table;

a record of the conversion table comprising identification information of said logic terminal, a first internal destination address, a first external source address, a first external destination address and a if said request identification field having a value indicating is a private address communication, if private address communication is to take place via said logic terminal toward said second internal destination address; or, a set of information/address comprising an identification information of a logic terminal which has received an external packet; an external source address thereof,; and an external destination address thereof is registered as a record of said conversion table in such a manner that the determination of said information/address set allows for an exclusive determination of said internal destination address which is stored into the header of the internal packet produced by the access control apparatus installed on the transmission side;

with respect to identification information of the same logic terminal, a set of said external destination address and said internal destination address stored into said header portion is made different from each and every other record;

~~a delivery destination of said external packet can be changed by changing an external destination address contained in an external packet which is entered from the same logic terminal;~~

a record of the conversion table comprising identification information of said logic terminal, at least one of a second external source address and a second external destination address, and a request identification field having a value indicating if said request identification contained in said conversion table field is a non-private address communication, if non-private address communication is to take place from said second external source address, via said logic terminal or via said logic terminal toward said second external destination address;~~a set of said identification information of the logic terminal and said source address is registered as a record of said conversion table;~~

~~said registration implies a transmission permission with respect to a terminal having said external source address;~~

said first access control apparatus being provided for, when an external packet is reached received from a said logic terminal; via a user communication line to an access control apparatus;

if the record of the conversion table that comprises the identification information of the said logic terminal has a request identification field indicative of a private address communication, determining if

~~when it is so detected that a request identification is registered as a private address communication as said first case into a record of said conversion table containing the identification information of the logic terminal which has received said external packet, when it is so detected that~~both the external source address and the external destination address contained in said external packet are registered-stored in said as a record of said conversion table ;~~and if so, converting said external packet is converted into said an internal packet by employing both the logic terminal identification information and the first internal destination address which are acquired from said conversion table; and~~

~~when it is so found out that if the request identification field of the record said request identification is indicative of registered as a non-private address communication as a second case, determining if at least one of the second external~~

source address and the second external destination address contained in said external packet is ~~registered~~ stored into the said record of said conversion table; ~~and if so,~~ then the ~~transmission permission of the terminal having said external source address can be confirmed, so that~~ said external packet is directly used as said an internal packet;

said first access control apparatus being provided for transferring the internal packet ~~is transferred~~ via said internal communication line and said relay apparatus provided in said integrated information communication system, and also ~~is transferred~~ via a logic terminal of ~~an~~ a second access control apparatus coupled to another user communication line so as to be transferred to another terminal; ~~installed on the reception side to another user communication line so as to be thereby reached to another terminal and~~

~~when the system comprising~~ a packet filter for detecting and discarding packets having an external destination address outside a predetermined range.

~~employed in said access control apparatus detects that the destination address~~ s contained in said external packet corresponds to such an address which is not opened outside network, said packet filter discards said detected external packet.

3. (previously presented) An integrated information communication system as claimed in claim 1 wherein: said external packet is transmitted/received between said communication company management networks by employing an address commonly used between said communication company management networks; and when a packet filter of a boundary relay apparatus detects that the destination address contained in said external packet is located in a range of an address which is not opened outside network, said packet filter discards said external packet; and either encryption or a digital signature can be applied which can be agreed by said two communication companies for said external packet to be transmitted/received.

4. (currently amended) An integrated information communication system, comprising:

a first access control apparatus for receiving an external packet ~~reached to an access control apparatus via an external communication line~~ and for converting the

~~external packet is converted into an internal packet~~ by assigning the external
~~packet assigned with a simple header based on a conversion table in said access control~~
apparatus, wherein

said external packet includes an external source address and an external destination address,

~~said internal packet comprises said simple header and said external packet, and~~
said simple header includes ~~said an~~ internal destination address and an
information section;

a network for transferring the internal packet to a second access control
~~apparatus~~~~said internal packet is sent from a network node via relay apparatus;~~
associated to

~~said internal destination address is referred at said relay apparatus, is transferred~~
~~in said integrated information communication system and then reaches to another~~
~~access control apparatus,~~

~~said external packet is restored from said internal packet and is transferred to an~~
~~external communication line of said integrated information communication system;~~

wherein only when a set of three addresses comprising a source of an originating
internal address assigned ~~at to~~ a logic terminal of a communication line termination
~~inputs receiving~~ said external packet, ~~an the~~ external destination address of said entered
received external packet and said the external source address of the received external
packet is registered as ~~the a~~ record in the conversion table of said ~~input side first~~ access
control apparatus, and said external packet is converted into said internal packet; and

~~wherein said set comprises two addresses of said originating internal address~~
~~and a external destination address in the entered external packet.~~

5. (canceled).

6. (currently amended) ~~An~~ The integrated information communication system
comprising:

~~an external packet reached to an access control apparatus via an external communication line is converted into an internal packet assigned with a simple header based on a conversion table in said access control apparatus, wherein~~

~~said external packet includes an external source address and an external destination address;~~

~~said internal packet comprises said simple header and said external packet, and~~

~~said simple header includes said internal destination address and information section;~~

~~said internal packet is sent from a network node via relay apparatus;~~

~~said internal destination address is referred at said relay apparatus, is transferred in said integrated information communication system and then reaches to another access control apparatus;~~

~~said external packet is restored from said internal packet and is transferred to an external communication line of said integrated information communication system;~~

~~only when a set of three addresses of an originating internal address assigned at a logic terminal of a communication line termination inputs said external packet, an external destination address of said entered external packet and said external source address is registered as the record in the conversion table of said input side access control apparatus, and said external packet is converted into said internal packet; and of claim 4~~

~~wherein record of said the conversion table is comprises at least two, group of said records having each a different destination address is and a different at respective records for an internal address assigned to a logic terminal of a communication line terminal, whereby and a transfer destination of said internal packet is changeable by changing an the external destination address of the received external packet inputting from said same logic terminal.~~

7. (currently amended) An integrated information communication system comprising:

a first access control apparatus for receiving an external packet via an external communication line and for converting the external packet into an internal packet by

assigning the external packet with a simple header based on a conversion table in said access control apparatus, wherein

said external packet includes an external source address and an external destination address,

said simple header includes an internal destination address and an information section;

a network for transferring the internal packet to a second access control apparatus associated to said internal destination address,

wherein when a set of three addresses comprising a source internal address assigned to a logic terminal of a communication line termination receiving said external packet, the external destination address of said received external packet and the external source address of the received external packet is registered as a record in the conversion table of said first access control apparatus, is said external packet converted into said internal packet~~an external packet reached to an access control apparatus via an external communication line is converted into an internal packet assigned with a simple header based on a conversion table in said access control apparatus, wherein~~

~~said external packet includes an external source address and an external destination address,~~

~~said internal packet comprises said simple header and said external packet, and~~

~~said simple header includes said internal destination address and information section;~~

~~said internal packet is sent from a network node via relay apparatus;~~

~~said internal destination address is referred at said relay apparatus, is transferred in said integrated information communication system and then reaches to another access control apparatus,~~

~~said external packet is restored from said internal packet and is transferred to an external communication line of said integrated information communication system;~~

~~only when a set of three addresses of an originating internal address assigned at a logic terminal of a communication line termination inputs said external packet, an external destination address of said entered external packet and said external source~~

~~address is registered as the record in the conversion table of said input side access control apparatus, and said external packet is converted into said internal packet;~~

~~wherein the record further comprises an address mask, only when a result of logical product of a destination address of said entered external packet and a destination address mark in record of said conversion table coincides with a destination address in said same record, and wherein said external packet is converted into said internal packet if a logical product of the mask and the external destination address of the received packet coincides with the external destination address in the record and~~
~~said internal packet is an optical frame.~~

8. (canceled)

9. (currently amended) An integrated information communication system as claimed in Claim 2, wherein a record of the conversion table comprises a priority information for assigning a priority level to an internal packet corresponding protocol ~~in said IP packet is referred, and a priority degree of next stage of internal packet reached at said access control apparatus from inside of said internal information communication system is selected by designating a to said~~ record of said conversion table ~~in accordance with a type of said protocol.~~

10. (currently amended) An integrated information communication system as claimed in Claim 4, wherein protocol in said the IP packet s are associate d with communication protocol types, and wherein the second access control apparatus is provided for assigning a predetermined priority level to the IP packets is referred, and a priority degree of next stage of internal packet reached at said access control apparatus from inside of said internal information communication system is selected by designating a record of said conversion table in accordance with a the type of said protocol the IP packets are associated with.

11. (currently amended) An integrated information communication system as claimed in Claim 10, wherein when said protocol is TCP, and wherein said priority

~~degree level can be selected at~~ have a predetermined value for every internal source address ~~port numbers.~~

12. (currently amended) An integrated information communication system as claimed in Claim 10, wherein when said protocol is UDP, and wherein said priority degree level have a predetermined value for ~~can be selected at~~ every ~~port numbers~~ internal source address.

13. (currently amended) An integrated information communication system as claimed in Claim 2, wherein a record of the conversion table comprises a priority information for assigning a priority level to an external packet corresponding to said protocol in said IP packet is referred, and a priority degree of next stage of external packet reached at said access control apparatus from outside of said internal information communication system is selected by designating a record of said conversion table in accordance with a type of said protocol.

14. (currently amended) An integrated information communication system as claimed in Claim 4, wherein the IP packets are associated with communication protocol types in said IP packet is referred, and wherein the second access control apparatus is provided for assigning a predetermined priority level degree of next stage of ~~to the external packet reached at said access control apparatus from outside of said internal information communication system is selected by designating a record of said conversion table in accordance with~~ a the type of said protocol the IP packet is associated with.

15. (currently amended) An integrated information communication system as claimed in Claim 14, wherein when said protocol is TCP, said priority degree level have a predetermined value for ~~can be selected at every port numbers~~ internal source address.

16. (currently amended) An integrated information communication system as claimed in Claim 14, wherein when said protocol is UDP, said priority level have a predetermined value for degree ~~can be selected at every port numbers~~ internal source address.

17. (original) An IP network, wherein
said IP network has access control apparatus,
said access control apparatus includes a conversion table which controls conversions from an external packet to an internal packet and from the internal packet to the external packet,
said conversion table includes plural records, a terminal address at a destination side is registered as an external destination address item in the record, and only when a destination address is non-private address, the internal packet is transferred in said IP network by regarding the external packet as the internal packet.

18. (previously presented) An IP network, wherein
said IP network has access control apparatus,
said access control apparatus includes a conversion table which controls conversions from an external packet to an internal packet and from the internal packet to the external packet,
said conversion table includes plural records, wherein each record comprises at least one of a source transmitting permission field and a destination transmitting permission field for indicating if ~~and transmitting permission of the internal packet associated with said record is decided by designating any one of source transmitting permission and destination transmitting permission in the record~~ permitted or not, and
wherein charging of said IP network is carried out by designating any one of the source transmitting permission and the destination transmitting permission in the record.

19. (previously presented) An IP network, wherein

said IP network has access control apparatus, said access control apparatus includes a conversion table which controls conversions from an external packet to an internal packet and from the internal packet to the external packet,

said conversion table includes plural records, wherein each record comprises a source receiving permission field for indicating if and receiving permission of the internal packet associated with said record is decided by designating source receiving permission in the record permitted or not, and

wherein charging of said IP network is carried out by designating the source receiving permission in the record.

20-22. (canceled)

23. (new) An integrated information communication system for transferring IP packets, comprising:

a first access control apparatus having a first logic terminal with a first internal address;

a second access control apparatus having a second logic terminal with a second internal address;

a router for transmitting from the first to the second access control apparatus an internal packet having an internal destination address equal to the second internal address; wherein

the first access control apparatus comprises a table having a first record that includes:

the second internal address; and

a first external destination address;

the first access control apparatus being provided for receiving on the first logic terminal an IP packet comprising an external IP destination address, and for transforming the IP packet into an internal packet having an internal destination address equal to the second internal address if the external IP destination address matches the first external destination address.

24. (new) The integrated information communication system of claim 23, wherein the first record further includes a first internal source address; and the first access control apparatus is provided for transforming the IP packet into said internal packet if additionally the first internal address matches the first internal source address.

25. (new) The integrated information communication system of claim 23, wherein the first record further includes an external source address; the IP packet received on the first logic terminal further comprises an external IP source address; and the first access control apparatus is provided for transforming the IP packet into said internal packet if additionally the external IP source address matches the external source address.

26. (new) The integrated information communication of claim 23, wherein: the conversion table further includes a second record comprising: a third internal address; and a second external destination address; whereby the first access control apparatus is provided for transforming an IP packet that is received on the first logic terminal and that comprises an external IP destination address equal to the second external destination address into an internal packet having an internal destination address equal to the third internal address.

27. (new) An integrated information communication system for transferring IP packets, comprising:

a first access control apparatus having a first logic terminal with a first internal address;

a second access control apparatus having a second logic terminal with a second internal address;

a router for transmitting from the first to the second access control apparatus an internal packet having an internal destination address equal to the second internal

address; wherein

the first access control apparatus comprises a table having a first record that includes:

a first mask;

a first external source address; and

the second internal address;

the first access control apparatus being provided for receiving on the first logic terminal an IP packet comprising an external IP source address, and for transforming the IP packet into an internal packet having an internal destination address equal to the second internal address if a logical product of the first mask and the external IP source address coincides with the first external source address.

28. (new) The integrated information communication system of claim 27, wherein the first record further includes a first internal source address; and

the first access control apparatus is provided for transforming the IP packet into said internal packet if additionally the first internal address matches the first internal source address.

29. (new) The integrated information communication system of claim 27, wherein the first record further includes a second mask and an external destination address;

the IP packet received on the first logic terminal further comprises an external IP destination address; and

the first access control apparatus is provided for transforming the IP packet into said internal packet if additionally a logical product of the second mask and the external IP destination address coincides with the external destination address of the first record.

30. (new) An integrated information communication system, comprising:

a first access control apparatus having a first logic terminal with a first internal address, said first access control apparatus being provided for receiving external

packets from said first logic terminal;

a second access control apparatus having a second logic terminal with a second internal address, said second access control apparatus being provided for transmitting external packets from said second logic terminal;

a router for transmitting from the first to the second access control apparatus an internal packet having an internal destination address equal to the second internal address; wherein

the first access control apparatus comprises a table having at least a record that includes:

said first internal address, an internal destination address equal to said second internal address, a first external source address, a first external destination address and a request identification field having a value indicating a private address communication, if private address communication is to take place via said first logic terminal toward said second logic terminal; or

said first internal address, at least one of a second external source address and a second external destination address, and a request identification field having a value indicating a non-private address communication, if non-private address communication is to take place from said second external source address via said first logic terminal, or via said first logic terminal toward said second external destination address;

said first access control apparatus being provided for, when an external packet is received from said first logic terminal:

if said at least one record has a request identification field indicative of a private address communication, determining if both an external source address and an external destination address contained in said external packet correspond to said first external source address and said first external destination address, and if so, converting said external packet into an internal packet by employing said first and second internal addresses; and

if said at least one record has a request identification field indicative of a non-private address communication, determining if an external source address contained in said external packet corresponds to said second external source address or if an external destination address contained in said external packet corresponds to said second

external destination address, and if so, using said external packet directly as an internal packet;

said first access control apparatus being provided for transferring the internal packet via said router to said second access control apparatus;

the system comprising a packet filter for detecting and discarding packets having an external destination address outside a predetermined range.

31. (new) The system of claim 30, wherein said at least one record comprises said first internal address, an internal destination address equal to said second internal address and a request identification field having a value indicating a virtual dedicated line, if virtual dedicated line communication is to take place via said first logic terminal toward said second logic terminal;

said first access control apparatus being provided for, when an external packet is received from said first logic terminal and if said at least one record has a request identification field indicative of a virtual dedicated line communication, converting said external packet into an internal packet by employing said first and second internal addresses.